

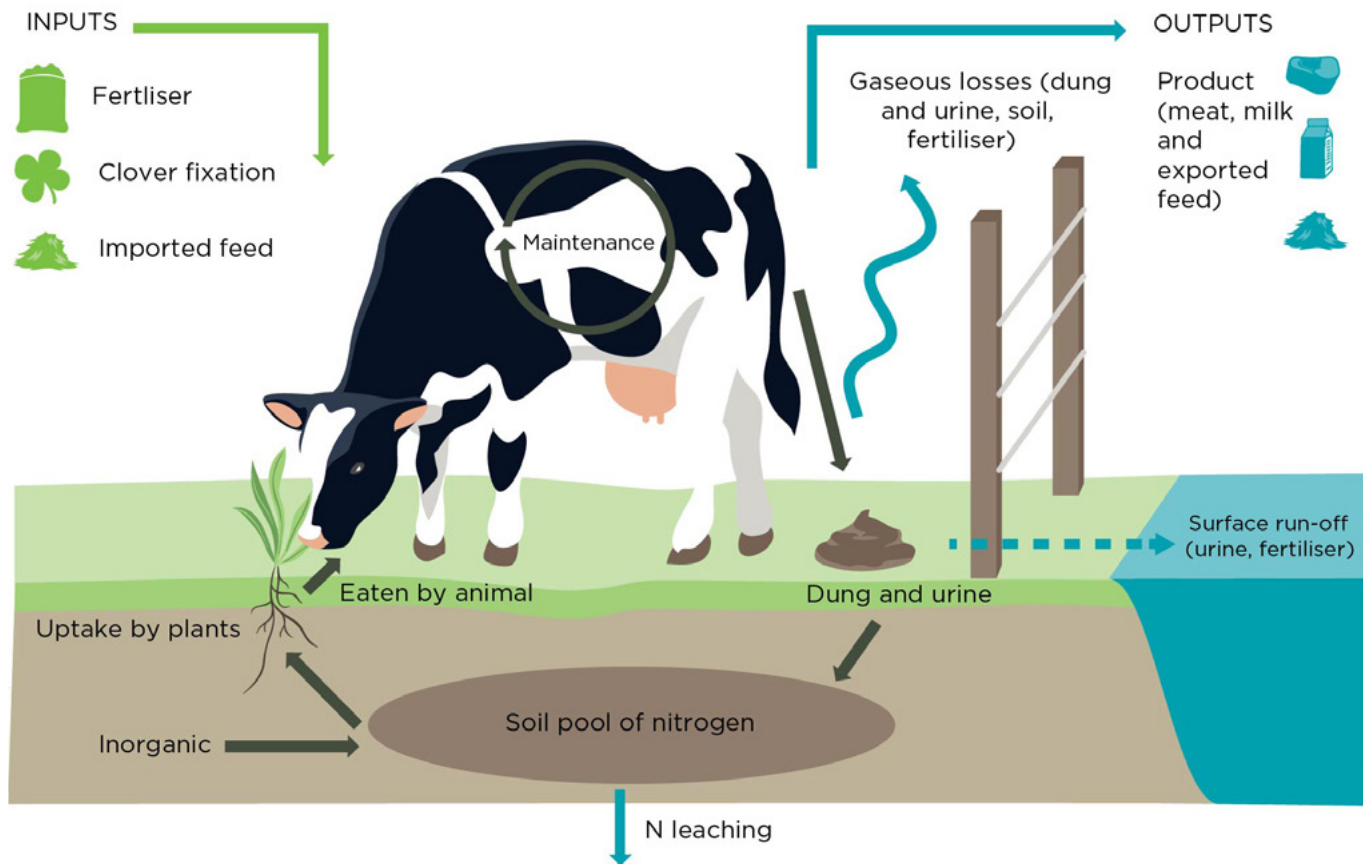
# Good Management Practices – Nitrogen

**Nitrogen is an essential nutrient for plant growth. It occurs naturally in the environment but is added in agricultural processes (typically as soluble fertiliser) to boost production. Although a large portion of the applied nitrogen is taken up by plants, excess amounts can drain through the soil profile into the groundwater.**

Livestock waste (particularly urine) also returns a considerable amount to the soil. Nitrate in this waste easily drains from the soil into the groundwater before plants can absorb it, and it can enter waterways, contributing to a decline in water quality. There are a number of farm practices relating to stock, fertilizer and cropping management that can help reduce the amount of nitrogen that leaches from your property. This factsheet provides information on how Bay of Plenty Regional Council can help you with good management practices.

The fact sheet on General Good Management Practices should be referred to in conjunction with the Good Management Practices - Nutrients and Good Management Practices - Phosphorous fact sheets. Depending on physical factors, soil type and other variants there may be other good management practices available to your property.

## Simplified nitrogen cycle



Source: Dairy NZ

The table below provides some examples of good management practices to include into your farm management to reduce nitrogen loss:

| Mitigation  | Example  |
|---|--|
| <b>Reduce the accumulation of surplus N in the soil</b> | <ul style="list-style-type: none"> <li>• Reduce inputs of N, such as fertiliser or imported feed with a high nitrogen content.</li> <li>• Avoid applying N fertilizer in late autumn/winter/early spring when soil temperatures and grass growth is low.</li> <li>• Control the duration of grazing of pasture and forage crops (on-off grazing).</li> <li>• Winter stock off-paddock (using a wintering pad) or off-farm.</li> <li>• Optimise timing and amounts of irrigation input.</li> <li>• Substitute autumn diets with low-N feed (such as whole crop silage).</li> <li>• Reduce stocking rate.</li> </ul>   |
| <b>Reduce N leaching from winter crops</b>              | <ul style="list-style-type: none"> <li>• Consider paddock selection (in particular slope), grazing time and grazing regime.</li> <li>• Minimise tillage using a low-til method of cultivation.</li> <li>• Plant catch crops to capture N from grazed winter forages.</li> <li>• Cut and carry fodder crops if practical and affordable.</li> <li>• Re-sow areas of bare or damaged soil as soon as possible.</li> </ul>  |
| <b>Reduce N loss from effluent</b>                      | <ul style="list-style-type: none"> <li>• Have an effluent block that is a suitable size for your application.</li> <li>• Measure effluent application rates to ensure they are suitable for your soil type.</li> <li>• Ensure storage ponds are lined to prevent leaching, and have sufficient storage. Use the Dairy NZ Effluent Storage Calculator to determine your storage requirements <a href="http://www.dairynz.co.nz/environment/effluent/effluent-storage/dairy-effluent-storage-calculator-desc/">www.dairynz.co.nz/environment/effluent/effluent-storage/dairy-effluent-storage-calculator-desc/</a></li> <li>• Maintain your infrastructure regularly to avoid leakage, burst pipes, blocked nozzles and pump failure.</li> <li>• Ensure effluent is applied when soil moisture levels are below saturation point. Check BOPRC Data Portal on the BOPRC website for latest soil moisture data - <a href="http://envdata.boprc.govt.nz/Data/Report">envdata.boprc.govt.nz/Data/Report</a></li> </ul> |
| <b>Reduce N from urine patches</b>                      | <ul style="list-style-type: none"> <li>• Use off-paddock facilities strategically to capture N from dung and urine.</li> <li>• Grazing cows off-paddock in autumn and winter can significantly reduce the N inputs. Off paddock facilities include; permanent feedpad, housed or freestall barns, and stand-off pads.</li> </ul>   |

#### Useful links and resources:

[www.rotoruafarmers.org.nz/gmp-nitrogen-efficiency/](http://www.rotoruafarmers.org.nz/gmp-nitrogen-efficiency/)  
[www.rotoruafarmers.org.nz/gmp-importing-maize/](http://www.rotoruafarmers.org.nz/gmp-importing-maize/)  
[www.rotoruafarmers.org.nz/gmp-feed-pad-to-stand-off-stock/](http://www.rotoruafarmers.org.nz/gmp-feed-pad-to-stand-off-stock/)  
[www.rotoruafarmers.org.nz/gmp/](http://www.rotoruafarmers.org.nz/gmp/)  
[www.dairynz.co.nz](http://www.dairynz.co.nz)  
[www.beeflambnz.com](http://www.beeflambnz.com)  
[www.plantandfood.co.nz](http://www.plantandfood.co.nz)  
[www.mfe.govt.nz](http://www.mfe.govt.nz)  
[www.agresearch.co.nz](http://www.agresearch.co.nz)  
[www.massey.ac.nz/~flrc/courses.html](http://www.massey.ac.nz/~flrc/courses.html)  
[www.overseer.org.nz](http://www.overseer.org.nz)



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